

How to Read a Chart Recorder

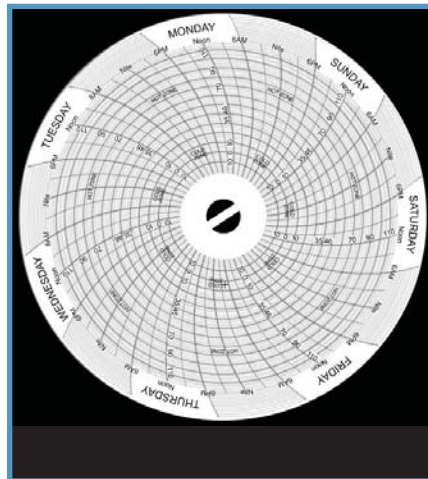
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How It Works

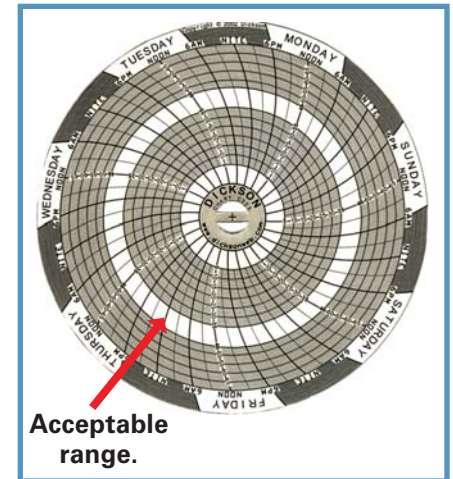
Chart recorders consist of a graph wheel with replaceable graph paper and ink pens. The pens mark the temperature on the graph paper as the wheel turns. The current temperature is at the end of the line. Temperatures are recorded continuously, 24 hours a day. The wheels of the most common models used for vaccine temperature monitoring make one full rotation every seven days. The graph paper has Fahrenheit or Celsius scales on it and the temperature is read where the ink line falls on the scale. Follow manufacturer instructions for loading the chart to ensure that the chart references the correct time.



Chart recorder.



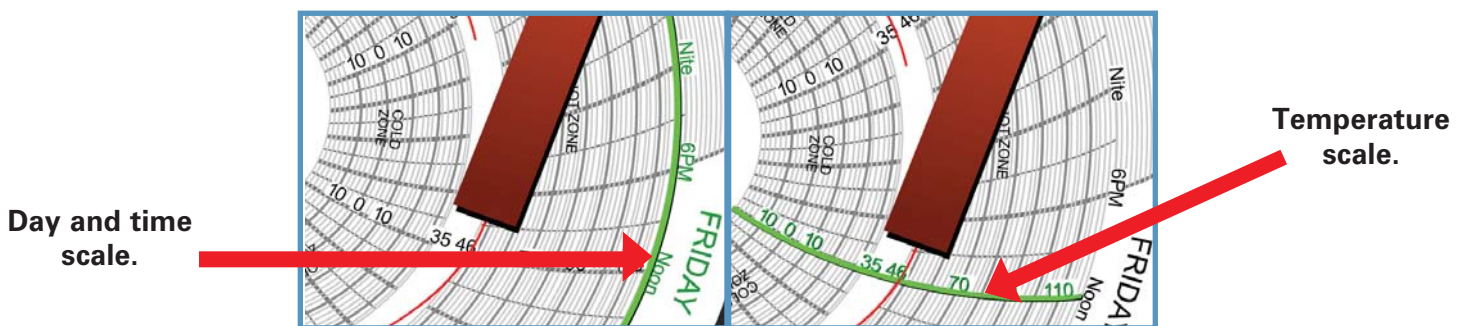
Graph paper—
two-degree increments.



Graph paper—range.

How to Read It

1. The graph contains two scales: one along the outer border of the paper that indicates the day of the week and the time; the other radiating from the center of the graph, like the spokes of a wheel, that indicates the temperature. The temperature will either be in Fahrenheit or Celsius.

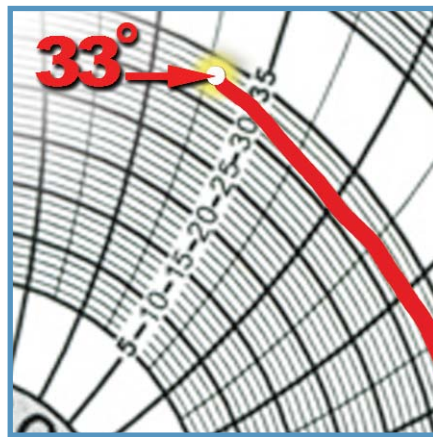


Each graph contains two scales.

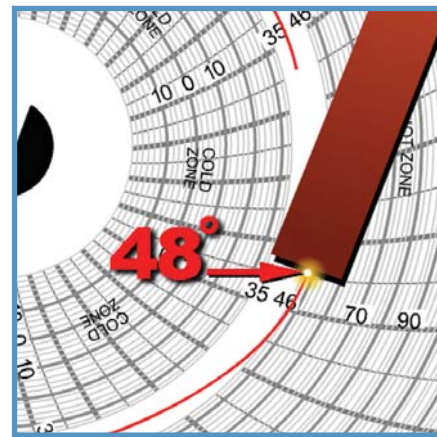
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- To read the temperature for any point of interest along the recorded ink line, find the nearest graph line that circles the center of the graph. Follow that circular graph line to the temperature scale. The temperature is indicated by where the circular graph line intersects the scale. Temperature scales come in different increments. On some graphs, the circular graph lines represent 1-degree increments on the temperature scale. On other graphs, the circular graph lines represent 2-degree increments.

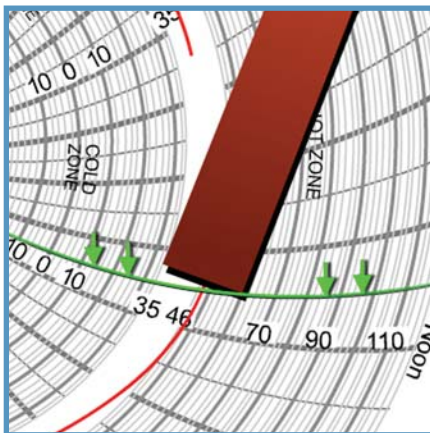


Current temperature is 33°F (end of red line). Each circular graph line represents 1 degree.

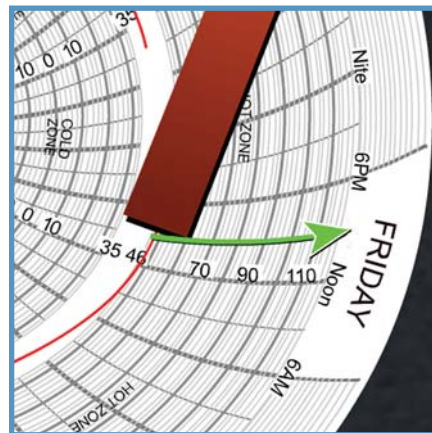


Current temperature is 48°F (end of red line). Each circular graph line represents 2 degrees.

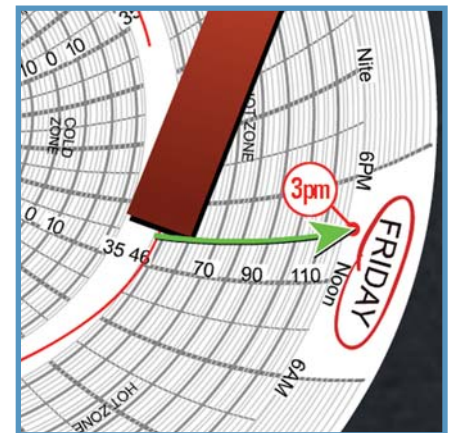
- To read the day for any point of interest along the recorded ink line, find the nearest curved line flowing from the center of the graph to the outside border. Follow the curved line to the outside border to read the day of the week. Estimate the time of day from the nearest curved line. The curved lines usually progress in 3-hour increments.



Nearest curved line to temperature of interest (current temperature at end of red line).



Follow curved line to outside border to reach the day and time scale.

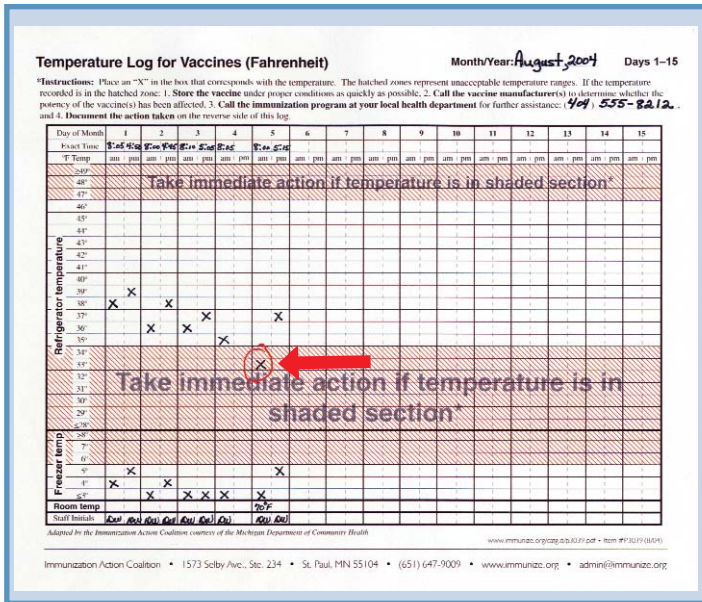


Current temperature falls on the line halfway between the curved lines "Noon" and "6PM" under "FRIDAY", indicating Friday, 3 p.m.

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4. Record the current temperature on the temperature log. Note any out-of-range temperatures and the action taken on the back of the log.



Front: Temperature Log for Vaccines.

Note: **Immediate action must be taken to correct improper vaccine storage conditions.**

Vaccine Storage Troubleshooting Record

Date	Time	Storage Unit Temp	Room Temp	Problem	Action Taken	Results	Initials
8/20/04	8:00 am	Refrigerator 38°F	76°F	Refrigerator temperature 2° lower than acceptable.	Supervisor notified and thermostat adjusted. Temperature in refrigerator and freezer monitored every 15 minutes. State contacted.	Refrigerator temperature stabilized at 37°F and freezer temperature stabilized at 5°F	Dev

Reverse: Vaccine Storage Troubleshooting Record.

5. Some charts (such as the one shown here) may have only a white band (without circular graph lines) indicating the recommended temperature range for vaccine storage. In this case, you must still document that the temperatures were checked twice daily and were in range. You may either:
 - a. Make a mark in the unshaded area of the temperature log that corresponds to the position of the line on the chart recorder graph (an approximation is acceptable, so long as the recorded temperature is within the recommended range); or
 - b. Write "graph in range" or some similar notation in the appropriate column of the temperature log.

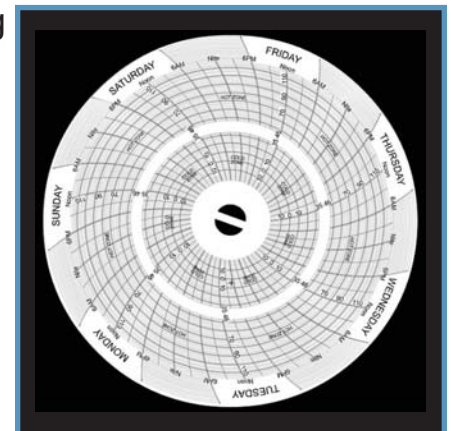


Chart with only a white band (without circular graph lines) indicating the recommended temperature range.

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6. All charts from recording thermometers must be kept with the temperature logs for a minimum of 3 years. Charts should always be labeled with the date range before they are placed in the chart recorder and when they are removed.
7. Some graphing thermometers have both a recording wheel and a digital temperature display. The reading from the digital display may not be the same as the temperature recorded on the chart. In case of discrepancies, the charted reading on the certified calibrated chart recorder is preferred over the digital reading, which uses a separate, uncertified sensor.